

bands to produce the screen sizes and patterns designated in Table 2 for Bands #1, 2 and 3 of these rolls.

All rolls, i.e., rolls #1-12, were subjected to wet brush finishing similar to that finishing method described in Example 1. After drying subsequent to the wet finishing method, the engraved coating of each band was tested for coefficient of friction. The results shown in Table 2 show that grinding and belt sanding of the coating prior to laser treatment had very little effect on the ultimate coefficient of friction of the final brushed, laser-engraved, coated surface.

TABLE 2

Roll No.	Coating & Method	Band No.	Screen Size & Pattern	Roll		
				#1 C/F	#2 C/F	#3 C/F
1,2 & 3	LC-4 (chromia) Plasma	1	45I-80-115	.26	.255	.26
		2	45I-80-22	.255	.255	.25
		3	45I-300-22	.255	.25	.265
4,5 & 6	LA-6 (alumina) Plasma	1	45I-80-135	.26	.255	.255
		2	45I-80-35	.245	.245	.245
		3	45I-300-35	.25	.25	.255
7,8 & 9	LC-19 (chromia-alumina) Plasma	1	45I-80-120	.255	.23	.235
		2	45I-80-30	.23	.23	.23
		3	45I-300-22	.23	.23	.24
10,11 & 12	LW-15 (WC, Co, Cr) D-Gun	1	45I-80-115	.25	.24	.245
		2	45I-80-30	.235	.235	.245
		3	45I-300-22	.245	.245	.25

What is claimed is:

1. A friction roll for performing work on an elongate solid material by frictional contact therewith comprising a roll having an external surface defining a working surface and a ceramic or metallic carbide coating bonded to said working surface, said coating having a plurality of laser-formed depressions having a pattern providing a substantially uniform, wear-resistant recast surface to said working surface, said recast surface providing a different morphological structure than the coating and providing a consistent coefficient of friction over a roughness range from about 20 to 1000 Ra, said coefficient of friction measured with a Shirley frictometer using a 150 denier nylon yarn at 10 grams tension and a surface speed of 260 yards per minute.

2. A friction roll as claimed in claim 1 wherein said ceramic or metallic carbide coating is alumina.

3. A friction roll as claimed in claim 1 wherein said ceramic or metallic carbide coating is a mixture of alumina and titania.

4. A friction roll as claimed in claim 1 wherein said ceramic or metallic carbide coating is chromia.

5. A friction roll as claimed in claim 1 wherein said ceramic or metallic carbide coating is a mixture of chromia and alumina.

6. A friction roll as claimed in claim 1 wherein said friction roll is a crimper roll.

7. A friction roll as claimed in claim 1 wherein said friction roll is a draw roll.

8. A friction roll as claimed in claim 1 wherein said friction roll is a yarn package drive roll.

9. A friction roll as claimed in claim 1 wherein said friction roll is a friction pin.

10. A friction roll as claimed in claim 1 wherein said friction roll is a guide pin.

11. A friction roll as claimed in claim 1 wherein said ceramic or metallic carbide coating is tungsten carbide.

12. A friction roll as claimed in claim 1 wherein said ceramic or metallic carbide coating contains tungsten carbide, cobalt and chromium.

13. Method of forming a friction roll for performing work on an elongate solid material by frictional contact with said elongate solid material, said roll having an external surface defining a working surface comprising the steps of bonding a ceramic or metallic carbide coating to said working surface and laser-engraving the coating on said working surface with a plurality of depressions having a pattern covering substantially the entire said working surface and said laser-engraving step providing a uniform, wear-resistant surface texture of recast coating formed by said laser-engraving step over substantially the entire said working surface, said recast surface providing a different morphological structure than the coating and providing a consistent coefficient of friction as measured with a Shirley frictometer using a 150 denier nylon yarn at 10 grams tension and a surface speed of 260 yards per minute.

14. Method as claimed in claim 13 wherein said laser-engraved coating is subjected to brushing with an aqueous slurry of a finely divided abrasive after the laser-engraving step.

15. Method as claimed in claim 13 wherein said ceramic or metallic carbide coating is alumina.

16. Method as claimed in claim 13 wherein said ceramic or metallic coating is a mixture of alumina and titanium dioxide.

17. Method as claimed in claim 13 wherein said ceramic or metallic carbide coating is chromia.

18. Method as claimed in claim 13 wherein said ceramic or metallic carbide coating is a mixture of chromia and alumina.

19. Method as claimed in claim 13 wherein said ceramic or metallic carbide coating is tungsten carbide.

20. Method as claimed in claim 13 wherein said ceramic or metallic coating is a mixture of tungsten carbide, cobalt and chromium.

21. Method as claimed in claim 13 wherein said ceramic or metallic carbide coating is sealed with a pore sealant after said bonding step and before said laser-engraving step.

22. Method as claimed in claim 13 wherein the resulting sealed ceramic or metallic carbide coating is ground after the sealing step and before the laser-engraving step.

23. A device for performing work on an elongate solid material by frictional contact, the device including friction roll having a working surface, the device comprising, a ceramic or metallic carbide coating bonded to said working surface, said coating having a plurality of laser-formed depressions having a pattern providing a substantially uniform, wear-resistant recast surface to said working surface, said recast surface providing a different morphological structure than the coating and providing a consistent coefficient of friction over a roughness range from 20 to 1000 Ra, said coefficient of friction measured with a Shirley frictometer using a 150